

February 24, 1997. This error resulted from the fact that claim 34 had been submitted by preliminary amendment, and was therefore not with the other claims. Since representations made with respect to the claims in the amendment are not true for claim 34, this supplemental amendment is being submitted to be sure that the Examiner was not misled by the prior amendment.

In the Office Action, claim 34 was rejected under 35 U.S.C. 112, it being suggested that the method steps "should clearly state that the applied optical radiation removes a plurality of hairs simultaneously." Claim 34 has been amended above to deal with this issue.

The Examiner also rejected claim 34 as being unpatentable over Chess under 35 U.S.C. 103, arguing that it would have been obvious to one ordinarily skilled in the art to have provided the laser apparatus of Chess with the irradiation parameters recited for effecting the desired surgical outcomes. The Applicant respectfully traverses this ground of rejection.

Page 13 of the specification discusses the relationship of pulse duration to hair removal treatment with minimal damage to the epidermis and to the dermis surrounding the hair follicle. As indicated on page 13, for times less than 2 ms, heat being absorbed by the melanin in the lower portion of the epidermis, at the dermis-epidermis (DE) junction, cannot reach the surface of the epidermis during the pulse to be removed either by a cooling device at such surface or by air. A time of at least approximately 2 ms for the pulse is therefore the minimum suggested pulse duration so as to reduce epidermal damage, and longer pulses are preferable for this purpose. Similarly, for light exposures longer than a few hundred milliseconds, too much dermal diffusion occurs during the exposure, resulting in either inefficient destruction of the target regions of the hair follicle, excessive dermal damage, or both. The dermal damage occurs because the time is greater than the thermal relaxation time of a hair follicle, which is approximately 40 ms, permitting heat to diffuse into the dermis. As indicated on page 13, for times between approximately 2 ms and 100 ms, destruction of hair follicles can occur without significant epidermal or dermal damage for energies within the ranges indicated in the specification, while for shorter pulses epidermal damage is more likely, and for longer pulses dermal damage is more likely.

The pulse duration range set forth in claim 34 is therefore fully supported on page 13 of the specification and is considered to be important, all other things being equal, to achieving successful hair removal with minimal damage to surrounding tissue.

